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BAKER (MICHAEL) JR INC BEAVER PA
NATIONAL DAM SAFETY PROGRAM. POTOMAC RIVER BASIN. SOUTH RIVER D--ETC(U)
SEP 78 M BAKER

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DACW65-78-D-0016

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POTOMAC RIVER BASIN

Name Of Dam: SOUTH RIVER NO. 11

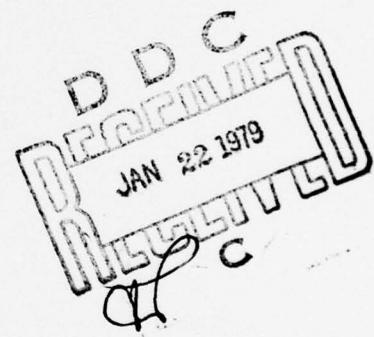
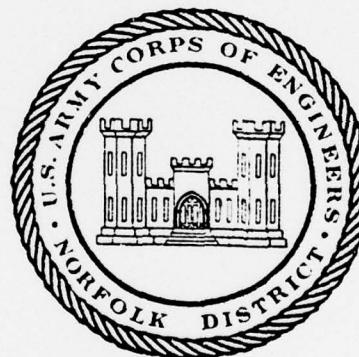
Location: AUGUSTA COUNTY, STATE OF VIRGINIA

Inventory Number: VA 01512

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LEVEL

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PHASE I INSPECTION REPORT NATIONAL DAM SAFETY PROGRAM



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PREPARED FOR
NORFOLK DISTRICT CORPS OF ENGINEERS
803 FRONT STREET
NORFOLK, VIRGINIA 23510

SEPTEMBER 1978

BY
MICHAEL BAKER, JR., INC.
BEAVER, PENNSYLVANIA 15009

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BEFORE COMPLETING FORM

REPORT DOCUMENTATION PAGE		
1. REPORT NUMBER VA 01512	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
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20. Abstract

Pursuant to Public Law 92-367, Phase I Inspection Reports are prepared under guidance contained in the recommended guidelines for safety inspection of dams, published by the Office of Chief of Engineers, Washington, D. C. 20314. The purpose of a Phase I investigation is to identify expeditiously those dams which may pose hazards to human life or property. The assessment of the general conditions of the dam is based upon available data and visual inspections. Detailed investigation and analyses involving topographic mapping, subsurface investigations, testing, and detailed computational evaluations are beyond the scope of a Phase I investigation; however, the investigation is intended to identify any need for such studies.

Based upon the field conditions at the time of the field inspection and all available engineering data, the Phase I report addresses the hydraulic, hydrologic, geologic, geotechnic, and structural aspects of the dam. The engineering techniques employed give a reasonably accurate assessment of the conditions of the dam. It should be realized that certain engineering aspects cannot be fully analyzed during a Phase I inspection. Assessment and remedial measures in the report include the requirements of additional indepth study when necessary.

Phase I reports include project information of the dam and appurtenances, all existing engineering data, operational procedures, hydraulic/hydrologic data of the watershed, dam stability, visual inspection report and an assessment including required remedial measures.



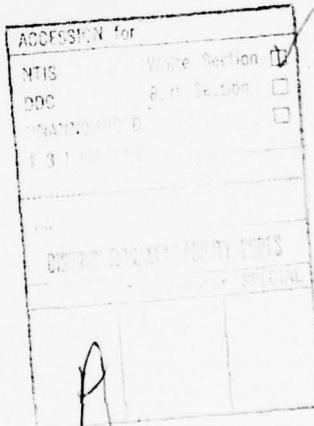
PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

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NAME OF DAM: SOUTH RIVER NO. 11

PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM

Name of Dam: South River No. 11
State: Virginia
County: Augusta
Stream: Canada Run
Date of Inspection: 19 July 1978

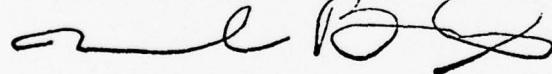
BRIEF ASSESSMENT OF DAM

South River Dam No. 11 is an earth dam approximately 29 feet high and 1150 feet long, owned by Mr. C. B. Delashmutt, and operated by the Headwaters Soil and Water Conservation District. This dam was designed by the U.S. Soil Conservation Service on the South River Sub-Watershed as part of the Potomac River Watershed Project. The visual inspections and review of engineering data in August 1978, indicate no serious deficiencies requiring emergency attention. No evidence of unstable slope conditions or seepage was observed.

The crest height of the dam is designed for a freeboard hydrograph which equals one-half the Probable Maximum Flood; therefore, the embankment will not be overtopped. The dam is in the "small" size-"high" hazard category. Stability analyses were not available; however, there was no evidence of distress due to seepage and sloughing.

It is recommended that the minor erosion on both faces of the dam be repaired as part of the annual maintenance program. Also, the brush and small trees noted on the embankment should be removed.

MICHAEL BAKER, JR., INC.



SUBMITTED:

James A. Walsh
Chief, Design Branch

Michael Baker, III, P.E.
Chairman of the Board and
Chief Executive Officer

RECOMMENDED:

Zane M. Goodwin
Chief, Engineering

APPROVED:

Douglas L. Haller
Colonel, Corps of Engineers
District Engineer

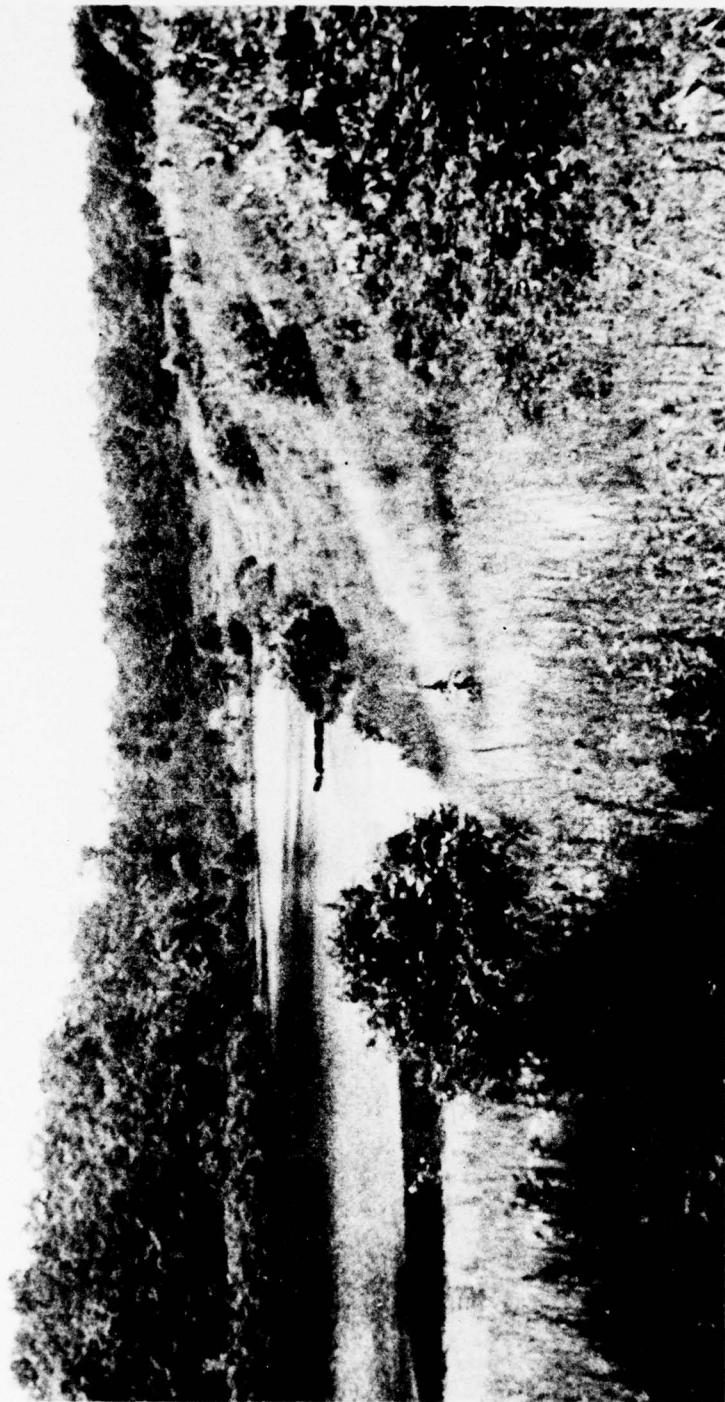
Date: _____



NAME OF DAM: SOUTH RIVER NO. 11

OVERALL VIEW OF DAM

OVERALL VIEW OF DAM



PHASE I INSPECTION REPORT
NATIONAL DAM SAFETY PROGRAM
NAME OF DAM: SOUTH RIVER NO. 11 ID# VA 01512

SECTION 1 - PROJECT INFORMATION

1.1 General

- 1.1.1 Authority: Public Law 92-367, 8 August 1972, authorized the Secretary of the Army, through the Corps of Engineers to initiate a national program of safety inspections of dams throughout the United States. The Norfolk District has been assigned the responsibility of supervising the inspection of dams in the Commonwealth of Virginia.
- 1.1.2 Purpose of Inspection: The purpose is to conduct a Phase I inspection according to the Recommended Guidelines for Safety Inspection of Dams. The main responsibility is to expeditiously identify those dams which may be a potential hazard to human life or property.

1.2 Description of Project

- 1.2.1 Description of Dam and Appurtenances: South River Dam No. 11 is an earthfill dam about 1150 feet long and 29 feet high. It was constructed with a 12 feet wide crest at elevation 1487.2 feet and side slopes of two and one-half horizontal to one vertical (2.5:1). Seepage control is provided by a core trench with impervious backfill (called keyway in design plans) extending to silty clay and fine sandy clay with gravel and cobbles. A toe drain that outlets adjacent to the left side of the outlet pipe was provided. A plan and typical cross section of the dam are shown on Plates 2 and 3 in Appendix I.

The principal spillway consists of a reinforced concrete riser (see Photo 1) with a 24 inch concrete pipe as a discharge conduit (see Photo 2). The discharge is controlled by a drop-inlet at the crest of the riser (elevation 1468.0 feet). The reservoir may be drained by the use of a hand-operated 24 inch slide gate. A typical section through the principal spillway is shown on Plate 3.

The emergency spillway is a vegetated earth side-channel spillway having a bottom width

NAME OF DAM: SOUTH RIVER NO. 11

of about 115 feet and a crest at elevation 1482.0 feet. Side slopes are 3:1.

- 1.2.2 Location: South River Dam No. 11 is located on Canada Run about three miles upstream from Lipscomb, Virginia. A Location Plan is included in Appendix I.
- 1.2.3 Size Classification: The maximum height of the dam is 29 feet. The reservoir volume to the top of the dam is 292 acre-feet. Therefore, the dam is in the "small" size category as defined by the Recommended Guidelines for Safety Inspection of Dams.
- 1.2.4 Hazard Classification: Due to the number of homes located immediately downstream of the dam, many lives could be lost in the event of failure of the dam. Therefore, this dam is considered in the "high" hazard category as defined by Section 2.1.2 of the Recommended Guidelines for Safety Inspection of Dams. The hazard classification used to categorize dams is a function of location only and has nothing to do with its stability or probability of failure.
- 1.2.5 Ownership: The dam is owned by Mr. C. B. Delashmutt.
- 1.2.6 Purpose: The dam is used for flood control.
- 1.2.7 Design and Construction History: The dam was designed and constructed under the supervision of the U.S. Soil Conservation Service (S.C.S.). Construction was completed by Evans and Nash in 1957.
- 1.2.8 Normal Operating Procedures: No formal operating procedures are followed for this dam. Normal pool is controlled by the drop-inlet at the crest of the riser (elevation 1468.0 feet). Water rising above the crest of the drop-inlet is automatically passed downstream. Excess flows are diverted through the side-channel emergency spillway having a crest elevation of 1482.0 feet. The 24 inch slide gate provided to drain the reservoir is not operated frequently.

NAME OF DAM: SOUTH RIVER NO. 11

1.3 Pertinent Data

1.3.1 Drainage Area: The dam controls a drainage area of 1.42 square miles.

1.3.2 Discharge at Dam Site: The maximum flood at the dam site is not known.

Principal Spillway:

Pool level at emergency	
spillway crest	61 c.f.s.
Pool level at top of dam	68 c.f.s.

Emergency Spillway:

Pool level at top of dam	3960 c.f.s.
------------------------------------	-------------

1.3.3 Dam and Reservoir Data: Pertinent data on the dam and reservoir are shown in the following table:

TABLE 1.1 DAM AND RESERVOIR DATA

Item	Elevation feet M.S.L.	Reservoir				Length feet
		Area acres	Acre- feet(a)	Watershed inches(b)		
Top of dam	1487.2	24.3	292	3.91	1300	
Maximum pool, design surcharge	-	-	-	-	-	-
Emergency spillway crest	1482.0	18.2	181	2.42	900	
Principal spillway crest	1468.0	5.5	24	0.32	400	
Streambed at center- line of dam	1460±	-	-	-	-	-

(a) Total storage.

(b) Based on 1.4 square miles.

SECTION 2 - ENGINEERING DATA

- 2.1 Design: The only design data available were the as-built drawings. These drawings have been submitted to the Norfolk District for future reference.
 - 2.2 Construction: The dam was constructed by Evans and Nash and was completed in 1957. No construction records were available for this inspection report.
 - 2.3 Operation: There are no formal operating procedures for this dam. The slide gate used to drain the reservoir is not periodically operated. There is no existing policy concerning the frequency of its use. The Headwaters Soil and Water Conservation District has a yearly maintenance program in conjunction with their annual inspection.
- 2.4 Evaluation
- 2.4.1 Design: No stability analyses, or hydrologic and hydraulic data were available for design review. The profile of the soil borings presented in the as-built drawings aided in determining foundation conditions, even though soils and geologic reports were not available.
 - 2.4.2 Construction: No construction records were available; however, the as-built drawings should indicate modifications and changes made during construction.
 - 2.4.3 Operation: Operation of the slide gate should be included in the annual maintenance and inspection program.

NAME OF DAM: SOUTH RIVER NO. 11

SECTION 3 - VISUAL INSPECTION

3.1 Findings

- 3.1.1 General: The field inspection was performed on 19 July 1978. No unusual weather conditions were experienced, and the reservoir was at normal pool. The dam and appurtenant structures were found to be in good overall condition at the time of the inspection. The problems noted during the visual inspection are considered minor and do not require immediate remedial treatment. Noteworthy deficiencies observed are described briefly in the following paragraphs. The complete visual inspection check list is given in Appendix III.
- 3.1.2 Dam: No seeping or sloughing was observed during the inspection. A few, eroded, pedestrian paths are present on both the upstream and downstream faces of the dam. Also, small trees and thick brush were noted growing on the embankment (see Photos 3 and 4).
- 3.1.3 Appurtenant Structures: The inlet and outlet structures appeared to be in good physical condition and functioning properly; however, a heavy layer of rust covers the trash rack. No serious deficiencies were noted in the emergency spillway. Many small trees were present in both the approach and discharge channels.
- 3.1.4 Reservoir Area: No serious deficiencies were observed in the reservoir area.
- 3.1.5 Downstream Channel: The banks of the downstream channel are heavily overgrown with brush.
- 3.2 Evaluation: None of the above items is serious enough to warrant immediate repair since they do not threaten the integrity of the dam. However, these repair items are considered good maintenance and should be accomplished as part of an annual maintenance program. The following maintenance items are suggested:
- 1) The brush and small trees growing on the embankment and in the emergency spillway should be removed.

NAME OF DAM: SOUTH RIVER NO. 11

- 2) The eroded pathways on both faces of the dam should be filled and reseeded.
- 3) The trash rack should be periodically cleaned and a rust preventive coating applied.
- 4) The banks of the downstream channel should be cleared periodically.

NAME OF DAM: SOUTH RIVER NO. 11

SECTION 4 - OPERATIONAL PROCEDURES

- 4.1 Procedures: No formal operational procedures are required since flows are passed automatically. The normal pool elevation is controlled by the elevation of the crest of the riser.
- 4.2 Maintenance of Dam: The Headwaters Soil and Water Conservation District conducts a yearly maintenance program in conjunction with their annual inspection. The maintenance program includes liming, fertilizing, and mowing the embankment and spillways; seeding and mulching bare areas; painting the trash racks; and repairing gullies that occur in the dam and spillway areas.
- 4.3 Maintenance of Operating Facilities: The Headwater's Soil and Water Conservation District is responsible for the maintenance of the trash racks and the emergency drain gates.
- 4.4 Warning System: At the present time, there is no warning system or evacuation plan in operation.
- 4.5 Evaluation: The maintenance program of the operating facilities indicated no gross neglect; however, formal checks of the operation of the emergency outlet should be made as part of the annual inspection.

NAME OF DAM: SOUTH RIVER NO. 11

SECTION 5 - HYDRAULIC/HYDROLOGIC DATA

- 5.1 Design: The S.C.S. hydraulic/hydrologic calculations were unavailable for the completion of this report.
- 5.2 Hydrologic Records: None were available.
- 5.3 Flood Experience: No records were available.
- 5.4 Flood Potential: Performance of the reservoir was determined by routing the one-half Probable Maximum Flood (P.M.F.) through the reservoir as required for a dam classified by the Recommended Guidelines for the Safety Inspection of Dams as a "small" size-"high" hazard dam.
- 5.5 Reservoir Regulation: Pertinent dam and reservoir data are shown in Table 1.1, paragraph 1.3.3.
 Regulation of the flow from the reservoir is automatic. Normal flows are controlled by the crest of the riser at an elevation of 1468.0 feet. Water entering this inlet flows through the dam in a 24 inch diameter concrete conduit. Flood waters also flow past the dam through an ungated, vegetated, side-channel, emergency spillway in the event water in the reservoir rises over the spillway crest.
- 5.6 Overtopping Potential: The probable rise in the reservoir and other pertinent information on the reservoir performance for the one-half P.M.F. and 100 year flood are shown in the following table:

TABLE 5.1 RESERVOIR PERFORMANCE

Item	Hydrographs			
	Normal	100 Year	1/2 P.M.F.	P.M.F.
Peak flow, c.f.s.				
Inflow	-	789	2858	-
Outflow	-	66	2752	-
Peak elev., ft. M.S.L.	1468	1480.2	1486.1(a)	-
Emergency spillway				
Depth of flow, ft.	-	-	2.5(b)	-
Avg. velocity, f.p.s.	-	-	8.8	-
Non-overflow section				
Depth of flow, ft.	-	-	-	-
Avg. velocity, f.p.s.	-	-	-	-

(a) Neglects principal spillway flow, which was minor.

(b) Actual depth of flow in spillway, not including velocity head.

NAME OF DAM: SOUTH RIVER NO. 11

- 5.7 Reservoir Emptying Potential: A 24 inch diameter sluice gate with an invert elevation of 1460 feet allows a discharge of 38 c.f.s. with the reservoir level at normal pool and essentially dewateres the reservoir in about 12 hours.
- 5.8 Evaluation: Hydraulic and hydrologic determinations of the project were computed as part of this report. The one-half P.M.F. was routed through the dam and reservoir starting with the reservoir level at the emergency spillway crest. The routing produced a maximum water surface elevation of 1486.1 feet which is 1.1 feet lower than the minimum top of dam elevation. Therefore, the dam and spillway have adequate storage-discharge capacities to pass the one-half P.M.F. This spillway capacity is consistent with the "small" size-"high" hazard classification of the dam.

It should be noted that conclusions pertain to present day conditions, and that the effect of future development on the hydrology has not been considered.

SECTION 6 - DAM STABILITY

- 6.1 Foundation and Abutments: The foundation of the dam consists of gravelly fine sandy clay loam with cobbles overlying fine sandy clay with gravel and cobbles, and silty clay. The impervious core trench (called keyway in design plans) provided for seepage control extends to the silty clay and fine sandy clay with gravel and cobbles, as shown in the as-built drawings. Bedrock was not exposed at the site. Subsurface information was not available for higher sections of the abutments. However, the gradual slope of the left abutment indicates that it may have a thick soil cover.
- 6.2 Stability Analyses
- 6.2.1 Visual Observations: No evidence of instability in the embankment slopes or spillway cut-slopes was observed. No seepage was observed in the embankment, abutments or foundation that would suggest an unstable condition.
- 6.2.2 Design Data: Slope stability analyses were not available for design review.
- 6.2.3 Operating Records: Reports summarizing the findings of past inspections were available for review. No deteriorating conditions were indicated by these reports.
- 6.2.4 Post-Construction Changes: No alterations to the dam were apparent since it was constructed.
- 6.2.5 Seismic Stability: South River Dam No. 11 is in Seismic Zone 2, and is considered to have no hazard from earthquakes according to the Recommended Guidelines for Safety Inspection of Dams.
- 6.3 Evaluation: Stability analyses and construction records were not available. However, the absence of seriously distressed conditions and the fact that the dam is designed for the freeboard hydrograph attest to the adequacy of the design.

SECTION 7 - ASSESSMENT/REMEDIAL MEASURES

7.1 Dam Assessment: There were no findings as a result of this inspection that would indicate the structure of the dam is unsound. No seepage was found, and the spillway is considered adequate to pass one-half of the P.M.F. (the minimum requirement for a "small" size- "high" hazard dam). No evidence of embankment distress was observed. Design hydraulic and hydrologic analyses; and design soils, foundation and stability reports were not available for review.

The dam is generally in good condition with the exception of normal maintenance items.

7.2 Recommended Remedial Measures: The inspection revealed certain preventative maintenance items which should be scheduled during the annual maintenance period. These are:

- 1) Cut and remove the brush and small trees from both faces of the dam and the emergency spillway.
- 2) Fill and reseed the eroded foot paths.
- 3) Periodically clean and paint the trash rack to prevent corrosion.
- 4) Periodically clear the banks of the downstream channel to prevent obstruction of flow.

NAME OF DAM: SOUTH RIVER NO. 11

APPENDIX I

PLATES

CONTENTS

Location Plan

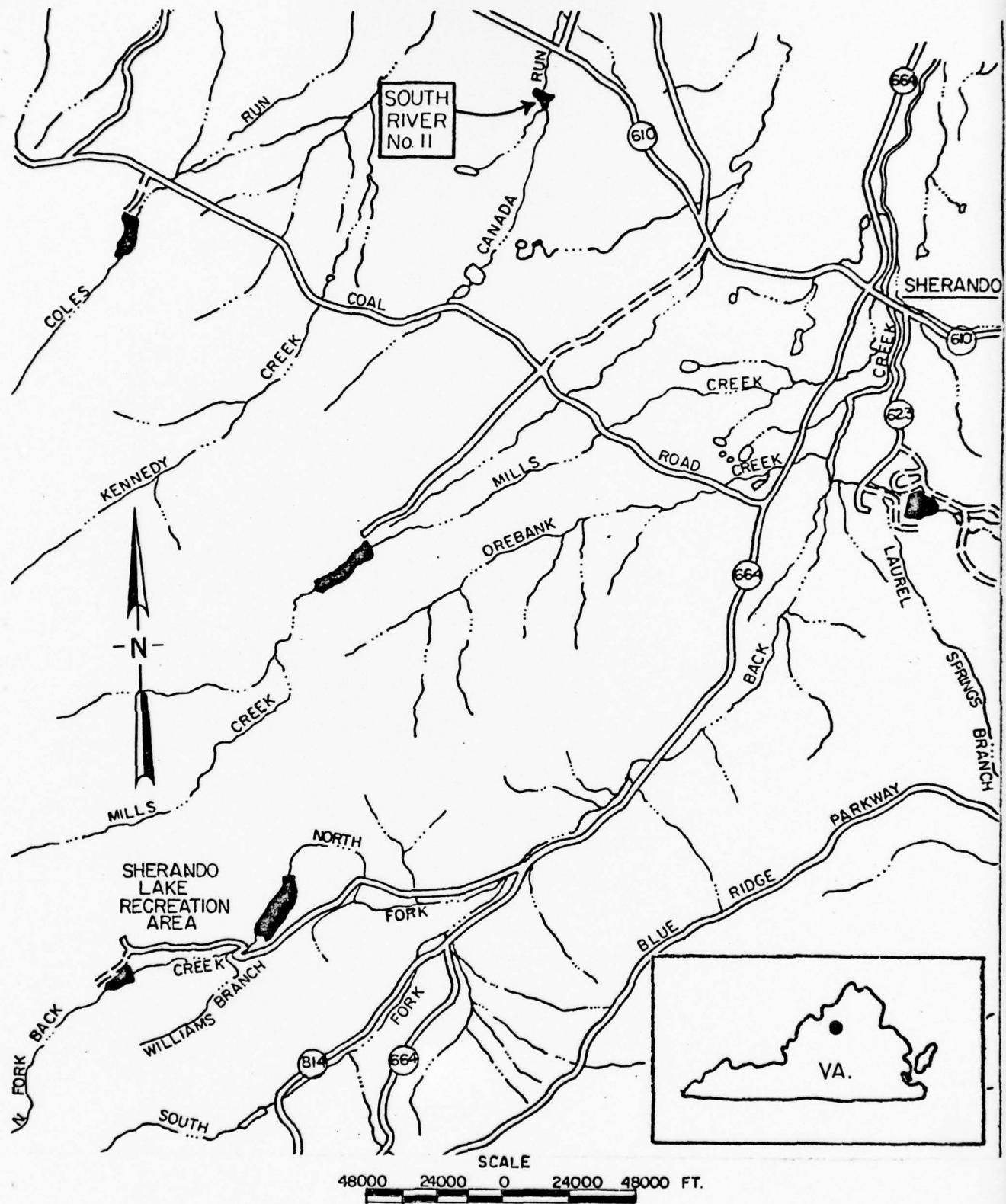
Plate 1: Reservoir Area Map

Plate 2: Plan of Dam

Plate 3: Typical Section Through the Principal Spillway

Plate 4: Embankment and Pipe Profiles

NAME OF DAM: SOUTH RIVER NO. 11



LOCATION PLAN

SOUTH RIVER No. II

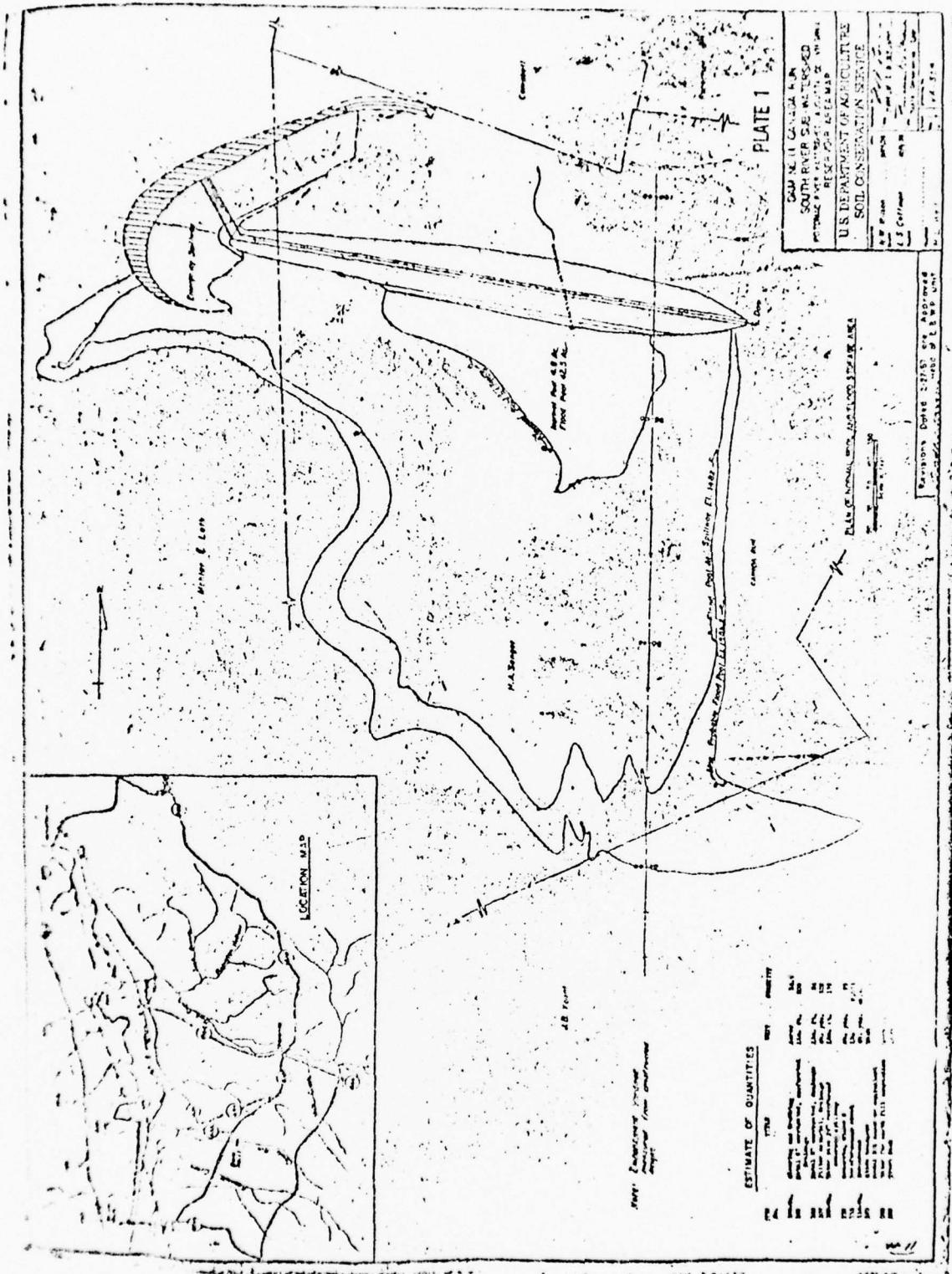
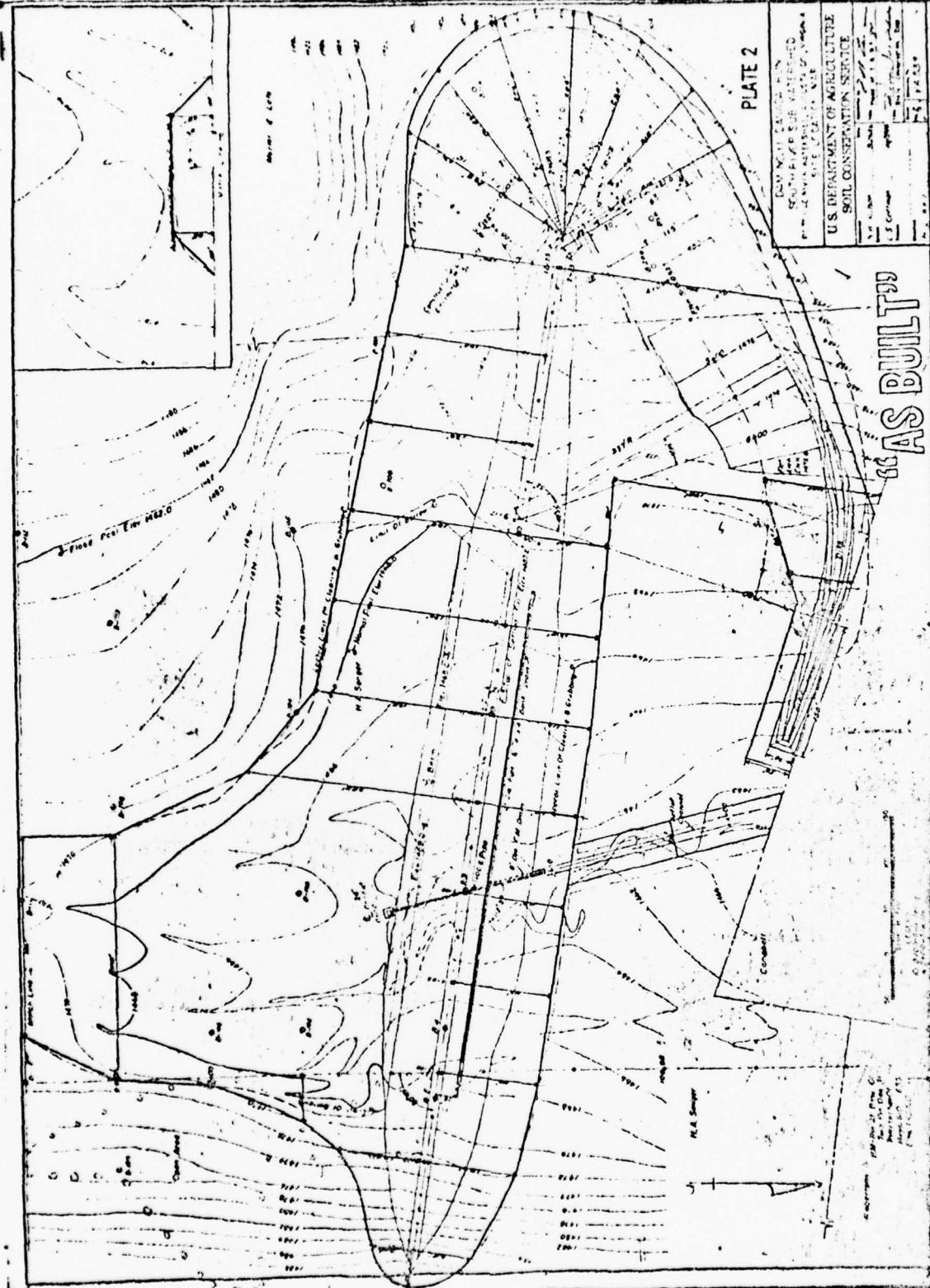
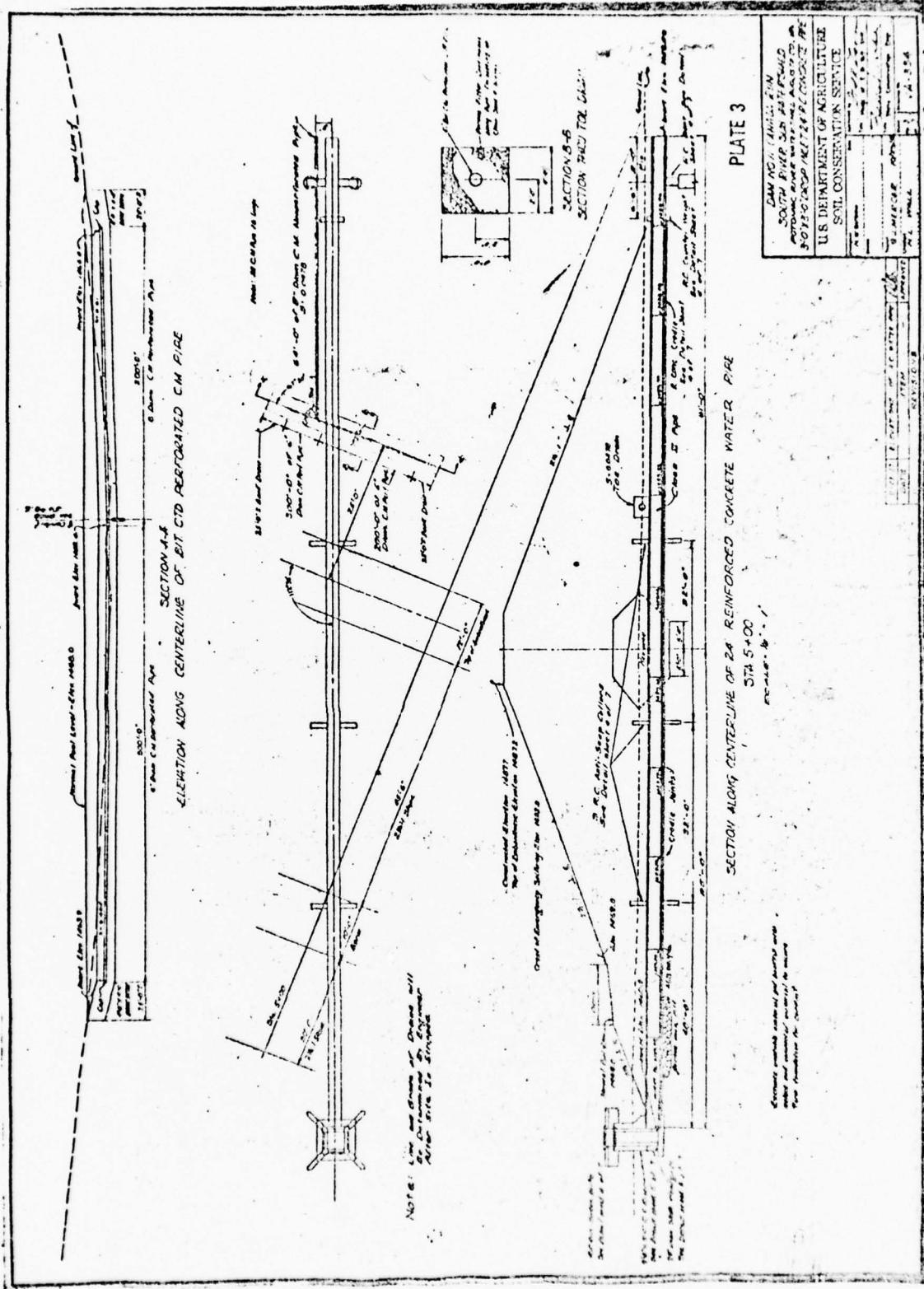


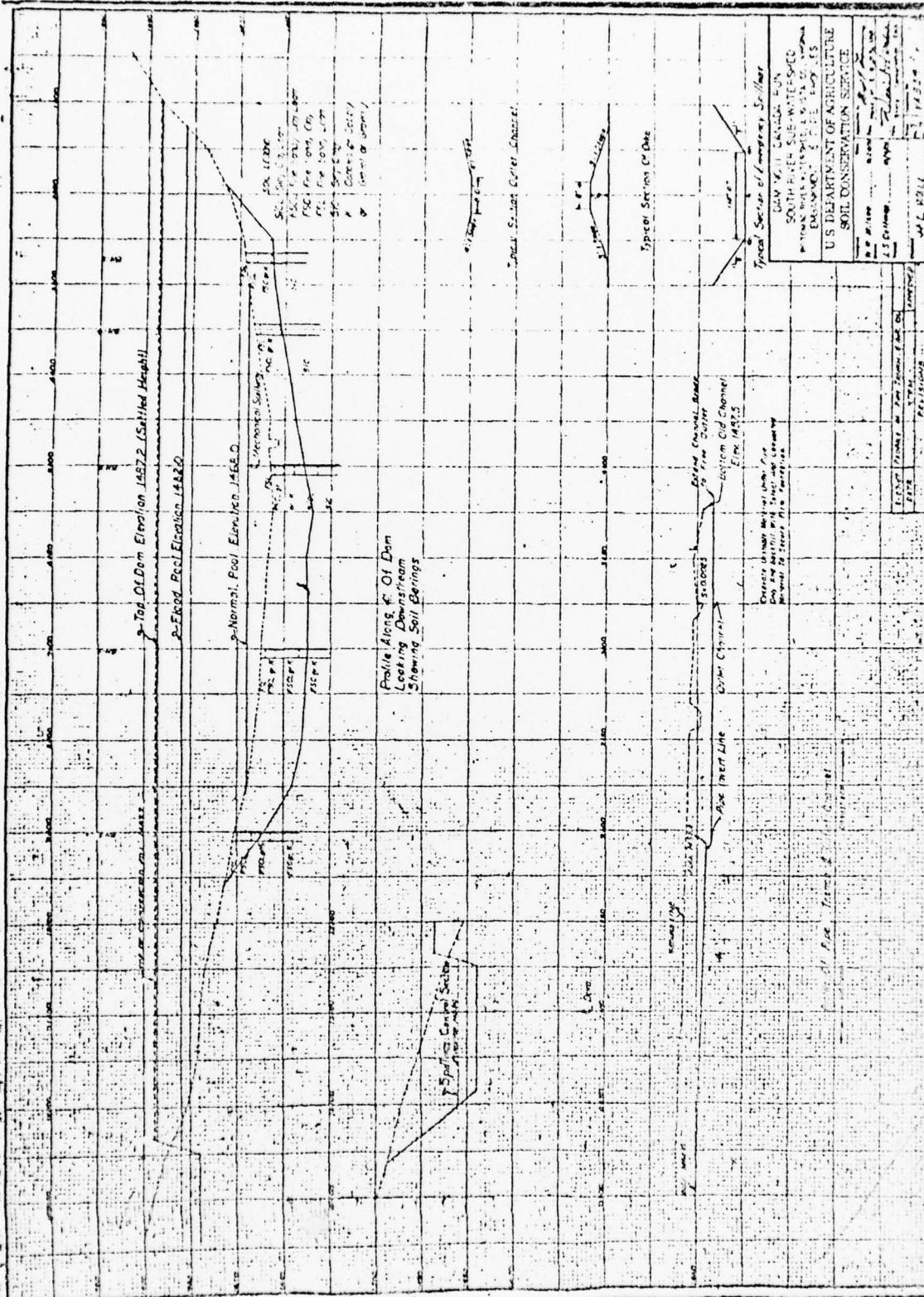
PLATE 2

CONTINUATION OF
SOIL SURVEY OF VARIOUS
PORTIONS OF THE STATE
OF KANSAS
U.S. DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

KANSAS BUILT







APPENDIX II

PHOTOGRAPHS

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- Photo 1: Inlet Riser in Reservoir
- Photo 2: Outlet Pipe at Toe of Downstream Slope
- Photo 3: Brush and Trees Growing on Downstream Face Looking From Right Side
- Photo 4: Brush and Trees on the Upstream Face Looking From Right Side

Note: Photographs were taken 19 July 1978.

NAME OF DAM: SOUTH RIVER NO. 11

SOUTH RIVER No. 11

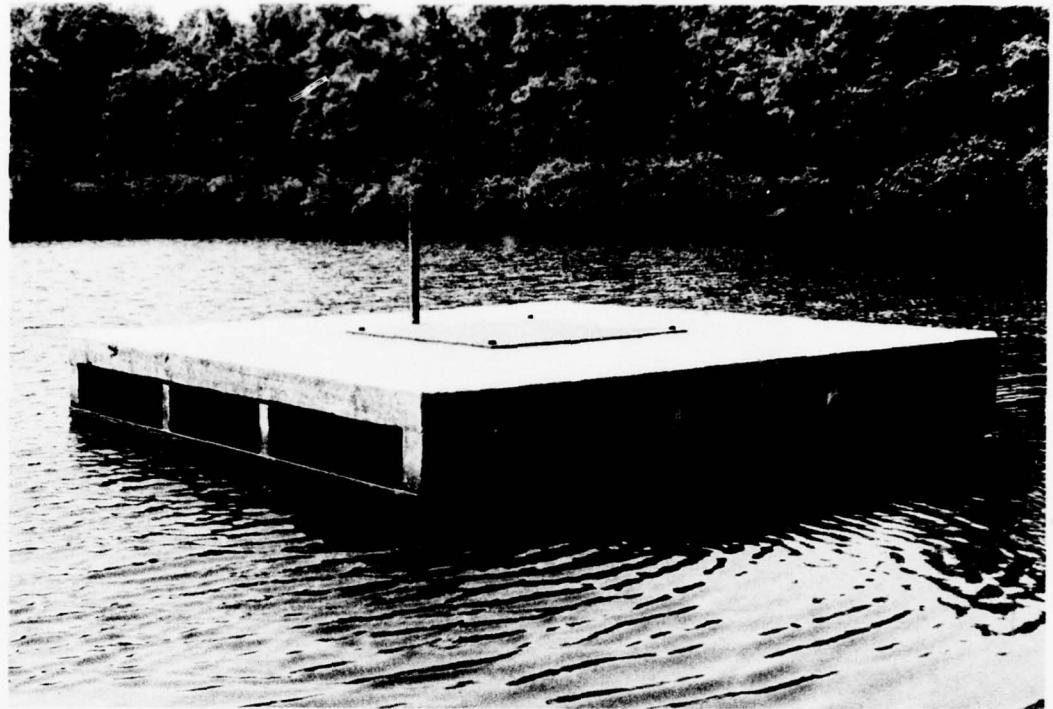


PHOTO 1. Inlet Riser in Reservoir



PHOTO 2. Outlet Pipe at Toe of Downstream Slope

SOUTH RIVER No. 11



PHOTO 3. Brush and Trees Growing on Downstream Face Looking From Right Side



PHOTO 4. Brush and Trees on the Upstream Face Looking From Right Side

APPENDIX III

CHECK LIST - VISUAL INSPECTION

Check List
Visual Inspection
Phase 1

Name Dam South River Dam No. 11 County Augusta State Virginia Coordinates Lat. 3759.6 Long. 7859.5

Date Inspection 19 July 1978 Weather Sunny, Hot Temperature 90°F.

Pool Elevation at Time of Inspection 1468.0 M.S.L. Tailwater at Time of Inspection 1458.0 M.S.L.

III-1

Inspection Personnel:

MICHAEL BAKER, JR., INC.: SOIL & WATER CONSERVATION DISTRICT
E. Brill
J. Thompson
M. Mill

M. Mill Recorder

Sheet 1

EMBANKMENT

SOUTH RIVER DAM NO. 11	VISUAL EXAMINATION OF EMBANKMENT	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SURFACE CRACKS	III-2	No surface cracks were observed.	
UNUSUAL MOVEMENT OR CRACKING AT OR BEYOND THE TOE		No unusual movement or cracking at or beyond the toe was observed.	
SLoughing OR Erosion OF EMBANKMENT AND ABUTMENT SLOPES		The dam appears to have been constructed with 2.5:1 side slopes. No sloughing or severe erosion was observed. A few eroded footpaths were noted on both the upstream and downstream slopes. A few small trees were observed on the slopes.	The footpaths should be reseeded, and the small trees should be removed.
VERTICAL AND HORIZONTAL ALIGNMENT OF THE CREST		No bowing or bulging was observed. The elevation of the crest had no noticeable abrupt changes.	
RIPRAP FAILURES		None were observed.	

Sheet 2

EMBANKMENT

SOUTH RIVER DAM NO. 11

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
-----------------------	--------------	----------------------------

JUNCTION OF EMBANKMENT AND ABUTMENT, SPILLWAY AND DAM	No sloughing or erosion was observed at the junction of the embankment and abutment. No outcrops were observed at the abutments.	
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III-3

ANY NOTICEABLE SEEPAGE	No seepage was observed.	
------------------------	--------------------------	--

STAFF GAGE AND RECORDER	Staff gages were observed near the right abutment.	
-------------------------	--	--

DRAINS	A toe drain outlet is located adjacent to the left side of the outlet pipe.	
--------	---	--

OUTLET WORKS

SOUTH RIVER DAM NO. 11

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CRACKING AND SPALLING OF CONCRETE SURFACES IN OUTLET CONDUIT	No deterioration of concrete pipe was observed.	
INTAKE STRUCTURE III-4	No cracking or abnormal spalling of the reinforced concrete drop-inlet was observed. The trash rack is covered with a heavy layer of surface rust.	Periodically clean and paint the trash rack.
OUTLET STRUCTURE	The concrete pipe shows no signs of cracking or spalling.	
OUTLET CHANNEL	There is no significant erosion of the stilling basin.	
EMERGENCY GATE	The only gate on the intake is a pond drain, which is operated by hand from the top of the riser.	Gate should be periodically tested to insure proper functioning.

SOUTH RIVER DAM NO. 11

UNGATED SPILLWAY

VISUAL EXAMINATION OF

OBSERVATIONS

REMARKS OR RECOMMENDATIONS

CONCRETE WEIR

There is none.

APPROACH CHANNEL

The channel is grassy with a few trees.

III-5

Trees within the channel should be removed and the grass periodically mowed.

DISCHARGE CHANNEL

The channel is grassy and the downstream end has numerous trees. There is no sign of any significant erosion.

Same as approach channel.

BRIDGE AND PIERS

There are none.

INSTRUMENTATION

SOUTH RIVER DAM NO. 11

VISUAL EXAMINATION	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
MONUMENTATION/SURVEYS	There are none.	

OBSERVATION WELLS

There are none.

WEIRS

III-6

PIEZOMETERS

There are none.

OTHER

There are none.

RESERVOIR

SOUTH RIVER DAM NO. 11

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
SLOPES	No erosion or sloughing was observed.	
SEDIMENTATION	There is sedimentation.	
	III-7	

SOUTH RIVER DAM NO. 11

DOWNSTREAM CHANNEL

VISUAL EXAMINATION OF	OBSERVATIONS	REMARKS OR RECOMMENDATIONS
CONDITION (OBSTRUCTIONS, DEBRIS, ETC.)	Downstream channel banks are heavily overgrown with brush.	Periodically clear away obstructions.
SLOPES	Downstream channel slope is between one and two percent.	
APPROXIMATE NO. OF HOMES AND POPULATION	III-8	Approximately nine homes are located immediately downstream.

APPENDIX IV

CHECK LIST - ENGINEERING DATA

CHECK LIST
ENGINEERING DATA
DESIGN, CONSTRUCTION, OPERATION

SOUTH RIVER DAM NO. 11

<u>ITEM</u>	<u>REMARKS</u>
PLAN OF DAM	A complete set of as-built plans are available at the Norfolk District, Corps of Engineers. A plan view of the dam is included in this report as Plate 2.
REGIONAL VICINITY MAP	A regional and vicinity map is included in this report as the Location Plan in Appendix I.
CONSTRUCTION HISTORY	Construction records were not available.
TYPICAL SECTIONS OF DAM	A typical section of the dam is enclosed in the Phase I Inspection Report as Plate 3.
HYDROLOGIC/HYDRAULIC DATA	Hydraulic and hydrologic design data were not available for this inspection report.
OUTLETS - PLAN and DETAILS	are available at the Norfolk District, Corps of Engineers.
- CONSTRAINTS and DISCHARGE RATINGS	None were available.
RAINFALL/RESERVOIR RECORDS	No rainfall or reservoir level records are available at the dam. Rainfall data are available from Virginia Climatological Records.

IV-1

SOUTH RIVER DAM NO. 11

ITEM	REMARKS
DESIGN REPORTS	No design calculations were available for this inspection report.
GEOLOGY REPORTS	No formal geology reports were available. A profile of test borings drilled at the centerline of the dam is included in this report as Plate 4.
DESIGN COMPUTATIONS	No design computations were available.
HYDROLOGY & HYDRAULICS	
DAM STABILITY	
SEEPAGE STUDIES	
IV-2	
MATERIALS INVESTIGATIONS	A profile of test borings drilled at the centerline of the dam is included in this report as Plate 4.
BORING RECORDS	
LABORATORY	
FIELD	
POST-CONSTRUCTION SURVEYS OF DAM	No known surveys were available.
BORROW SOURCES	The locations of the borrow sources are not known.

SOUTH RIVER DAM NO. 11

ITEM	REMARKS
MONITORING SYSTEMS	No monitoring systems have been provided.
MODIFICATIONS	No known major modifications have been made.
HIGH POOL RECORDS	No high water records are available.
IV-3	
POST-CONSTRUCTION ENGINEERING STUDIES AND REPORTS	The Headwaters Soil and Water Conservation District conducts a yearly maintenance program in conjunction with their annual inspection. No known major construction has been done since the dam was built.
PRIOR ACCIDENTS OR FAILURE OF DAM DESCRIPTION REPORTS	None were apparent or reported.
M A I N T E N A N C E O P E R A T I O N R E C O R D S	The Headwaters Soil and Water Conservation District conducts a yearly maintenance program in conjunction with their annual inspection.

SOUTH RIVER DAM NO. 11

ITEM	REMARKS
SPILLWAY PLAN	This information is contained in the as-built drawings.
SECTIONS	
DETAILS	

OPERATING EQUIPMENT Plans and details of the hand-operated slide gate are included in the as-built drawings.
PLANS & DETAILS

CHECK LIST
HYDROLOGIC AND HYDRAULIC DATA
ENGINEERING DATA

DRAINAGE AREA CHARACTERISTICS: 1.4 square miles

ELEVATION TOP NORMAL POOL (STORAGE CAPACITY): 1468.0 (24 acre-feet)

ELEVATION TOP FLOOD CONTROL POOL (STORAGE CAPACITY): 1482.0 (181 acre-feet)

ELEVATION MAXIMUM DESIGN POOL: 1485.2

ELEVATION TOP DAM: 1487.7 (constructed), 1487.2 (settled)

CREST: Emergency Spillway

- a. Elevation 1482.0
- b. Type Side-channel
- c. Width 250 feet
- d. Length 640 feet
- e. Location Spillover Left abutment
- f. Number and Type of Gates None

OUTLET WORKS:

- a. Type Concrete riser with drop-inlet
- b. Location Riser in reservoir with reinforced concrete pipe
- c. Entrance inverts 1468.0 (principal riser inlet) extending to outlet channel
- d. Exit inverts 1458.0 (invert of 24 inch outlet pipe)
- e. Emergency draindown facilities Manually operated head gate for 24 inch outlet pipe on upstream side of concrete riser (invert 1460.5)

HYDROMETEOROLOGICAL GAGES: None

- a. Type _____
- b. Location _____
- c. Records _____

MAXIMUM NON-DAMAGING DISCHARGE Not known

NAME OF DAM: SOUTH RIVER NO. 11

APPENDIX V

ANNUAL MAINTENANCE INSPECTION REPORTS

Revised Version
USFS

ANNUAL INSPECTION REPORT OF STRUCTURAL NEEDS OF DEVELOPMENT
Shenandoah Valley Soil & Water Conservation District

April, 1970

Maintenance inspections were conducted on structural works of improvement in the Shenandoah Valley District. The following needs of repair and improvement were noted:

Site #27 - Sheepodo

Stillin basin needs cleaning out to lower water level 2 to 3 feet. Washed out section in outlet section of emergency spillway needs to be backfilled and seeded. Washed out section approximately 1' deep, 40' long and 2' wide. (Forest Service indicated they would do this repair work.)

Site #25 - Tonis Branch

Cattle grazing needs to be controlled on dam and in emergency spillway. Fertilizer on the emergency spillway would revive the vegetation quickly now if the grazing could be controlled.

Site #11

Trees need to be cut on dam and in emergency spillway. When cut the stumps should be killed.

Site #7

Controlled grazing would improve the maintenance of this structure.

Site #23 - Robinson Hollow

Locust trees on dam and in emergency spillway need to be cut and killed.

Site #26 - Jack Branch

Locust trees on dam need to be cut and killed. Trash on river top needs to be removed.

Sites # 76 and 77 - Heartstone

Locust trees on dam should be cut and killed.

APPROVED:

David Walker

David Walker, Chairman
Shenandoah Valley SWCD

April 5, 1970

May

W.M. L. Blair, Jr.
W.M. L. Blair, Jr.
Area Conservationist
April 27, 1970

W.M. L. Blair
U. S. Forest Service
April 29, 1970

OPERATION AND MAINTENANCE INSPECTION
of
South River Watershed Structures

An inspection team of Jackson Betts, Wayne Hypes, John Crist, Folger Taylor, and William E. Lucas, Jr. on April 5, 1978, visited the following dams of the South River Watershed of the Potomac River Watershed.

Site #3 - Greenville Correction Center - The dam is in good shape with good vegetative cover and has been mowed. Posts have been set to indicate firing stations in the emergency spillway and using the spillway bank as a pellet stop. When the firing training is completed the posts should be removed. This structure is being used rather wisely.

Site #4 - Kiwanis Lake - The spillway pipe and riser appear to be in good shape. All of the dam has been mowed. The Ky 31 is becoming thin on the front of the dam (wet side) and needs to be overseeded with Ky 31 and fertilized. The road on the top of the dam needs to be graveled on the steeper parts. The back part of the dam (dry side) has some woody growth that should be cut and deadened. There is about 1 Ac. that needs to be seeded to Ky 31. The entire dam and emergency spillway area should be limed and fertilized.

Site #6 - Sangers Lake - This structure is kept mowed. Some overseeding of Ky 31 would be helpful. Some Crownvetch has been started on it. The riser and spillway pipe appear to be in good shape. The berm is showing effects of wave erosion and would be improved by shaping with large stone.

Site #7 - Wilda - This dam has received much attention, such as brushhogging, Fall spraying for knapweed, Spring seeding of Ky 31, application of 10-10-10 fertilizer, and the owner will spot spray for weeds this growing season. The riser and pipe spillway appear to be in good shape, but the slide gate control rod and gate frame show much rust when the lake level is low.

Site #11 - Canada Run - County Dump - The woody growth was cut and sprayed last year. This dam should be mowed this year. The riser, pipe spillway and emergency spillway appear to be sound.

Site #24 - Happy Hollow Lake - This site has good vegetative cover and is kept mowed. The riser and pipe spillway appear sound. The emergency spillway is in good condition with good cover. The wooden trash rack is scheduled to be replaced

Site #25 - Toms Branch - This dam has very little woody growth on it. The pipe spillway and emergency spillway are in good condition. Stone has been applied to the road on the dam and has improved the dam by eliminating the standing water on the top of the dam. This dam should be mowed in the next two years. The road banks above the dam (road going to Shirey camp) should be seeded to cut down the silt and erosion.

Wayne McHypes, Sr.